



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jennifer Stone-Sundberg, et al.

Title: OPTICAL SPINEL ARTICLES AND METHODS FOR FORMING SAME

Application No.: 10/802,160

Filed: March 17, 2004

Examiner: Unknown

Group Art Unit: 2812

Atty. Docket No.: 1035-BI4309

COMMISSIONER FOR PATENTS  
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Alexandria, VA 22313-1450

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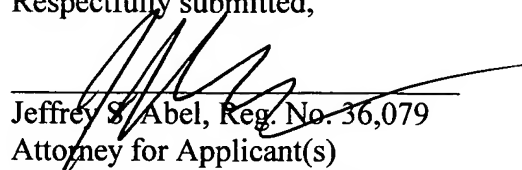
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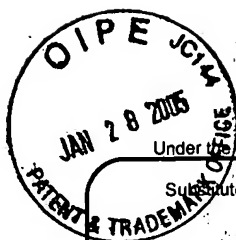
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Date

1/25/05

Respectfully submitted,

  
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PTO/SB/08A (08-03)

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of 3

**Complete if Known**

|                        |                         |
|------------------------|-------------------------|
| Application Number     | 10/802,160              |
| Filing Date            | March 17, 2004          |
| First Named Inventor   | Jennifer Stone-Sundberg |
| Art Unit               | 2812                    |
| Examiner Name          | UNASSIGNED              |
| Attorney Docket Number | 1035-BI4309             |

**U. S. PATENT DOCUMENTS**

| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|-----------------------|--------------------------|--|--------------------------------|--|---|
|                       |                          | Number-Kind Code <sup>2</sup> (if known) |                                |  |   |
|                       | AA                       | US- 4,963,520                            | 10/16/1990                     | Yoo, et al.  |   |
|                       | AB                       | US- 5,982,796                            | 11/09/1999                     | Kokta, et al.                                      |   |
|                       | AC                       | US- 5,654,973                            | 08/05/1997                     | Stultz, et al.                                     |   |
|                       | AD                       | US- 5,557,624                            | 09/17/1996                     | Stultz, et al.                                     |   |
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|                       | AF                       | US- 6,023,479                            | 02/08/2000                     | Thony, et al.                                      |   |
|                       | AG                       | US-                                      |                                |  |   |
|                       | AH                       | US-                                      |                                |  |   |
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**FOREIGN PATENT DOCUMENTS**

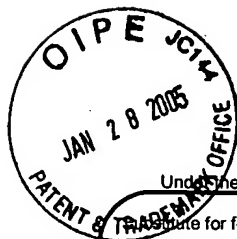
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Foreign Patent Document   | Publication<br>Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant Passages<br>Or Relevant Figures Appear | T <sup>6</sup> |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(Use as many sheets as necessary) |   | <b>Complete if Known</b> |                         |                        |             |
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|   |   | First Named Inventor     | Jennifer Stone-Sundberg |                        |             |
|   |   | Art Unit                 | 2812                    |                        |             |
|   |   | Examiner Name            | UNASSIGNED              |                        |             |
| Sheet   | 2 | of                       | 3                       | Attorney Docket Number | 1035-BI4309 |

| NON PATENT LITERATURE DOCUMENTS |                       |   |                |
|---------------------------------|-----------------------|---|----------------|
| Examiner Initials*              | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|                                 | BA                    | Efimov, A.N., et al., "Onan Unusual Azimuthal Orientation Relationship in the System Gallium Nitride Layer on Spinel Substrate", CRYSTALLOGRAPHY REPORTS, 45(2): 312-317 (2000).  |                |
|                                 | BB                    | Sun C.J., et al., "Mg-doped green light emitting diodes over cubic (1 1 1) MgAl <sub>2</sub> O <sub>4</sub> substrate", APP. PHYS. LETT. 72(19): 2361-2363 (1998).  |                |
|                                 | BC                    | Efimov, A.N., et al., "Symmetry constraints and epitaxial growth on non-isomorphic substrate", THIN SOLID FILMS 260: 111-117 (1995).  |                |
|                                 | BD                    | George, T., et al., "Novel symmetry in the growth of gallium nitride on magnesium aluminate substrates", APPL. PHYS. LETT. 68(3): 337-339 (1996).   |                |
|                                 | BE                    | Sun C.J., et al., "Deposition of high quality wurtzite GaN films over cubic (1 1 1) MgAl <sub>2</sub> O <sub>4</sub> substrates using low pressure and metalorganic chemical vapor deposition, " APPL. PHYS. LETT. 68(8): 1129-1131 (1996).                     |                |
|                                 | BF                    | Nakamura, S., et al., "Characteristics of InGaN multi-quantum-well-structure laser diodes, " APPL. PHYS. LETT. 68(23): 3269-3271 (1996).  |                |
|                                 | BG                    | Khan, M.A., et al., "Cleaved cavity optically pumped InGaN-GaN laser grown on spinel substrates," APPL. PHYS. LETT. 69(16): 2418-2420 (1996).   |                |
|                                 | BH                    | Tempel, A., et al., "Nachweis von Stapelfehlern in GaN-Exitaxieschichten mittels Elektronenbeugung," KRISTALL UND TECHNIK 10(7): 741-746 (1975).  |                |
|                                 | BI                    | Tempel, A., et al., "Zur Epitaxie von Galliumnitride auf nichtstoechiometrischem Spinel im System GaC <sub>1</sub> /NH <sub>3</sub> /He, " KRISTALL UND TECHNIK 10(7): 747-758 (1975)   |                |
|                                 | BJ                    | K.V. Yumashev, "Saturable absorber Co <sup>2+</sup> : MgAl <sub>2</sub> O <sub>3</sub> crystal for Q switching of 1.34-um Nd <sup>3+</sup> : YAlO <sub>3</sub> and 1.54-um Er <sup>3+</sup> : glass lasers," APPLIED OPTICS 38(30): 6343-6346 (1999).           |                |

|                    |  |                 |  |
|--------------------|--|-----------------|--|
| Examiner Signature |  | Date Considered |  |
|--------------------|--|-----------------|--|

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Sheet 3 of 3

**NON PATENT LITERATURE DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|--------------------|-----------------------|---|----------------|
|                    | CA                    | Camargo, M.B., et al., "Co2+ Y3Sc2Ga3O12 (YSGG) Passive Q-Switch for Infrared Erbium Lasers," submitted to LEOS in 1994.  |                |
|                    | CB                    | Mikhailov, V.P., et al., "Passive Q-switch performance at 1.3u (1.5u) and nonlinear spectroscopy of Co2+: MgAl2O4 and Co2+: LaMgAl11O9 crystals," OSA TOPS VOL. 26 Advanced Solid-State Lasers, pp. 317-324 (1999).   |                |
|                    | CC                    | Stulz, R.D., et al., "Divalent Uranium and Cobalt Saturable Absorber Q-Switches at 1.5um," OSA Proceedings on Advanced Solid-State Lasers, 24:460-464 (1995).   |                |
|                    | CD                    | Birnbaum, M., et al., "Co2+: ZnSe Saturable Absorber Q-Switch for the 1.54 Um Er3+: Yb3+: Glass Laser," OSA TOPS Vol. 10 Advanced Solid State Lasers, pp. 148-151 (1997).   |                |
|                    | CE                    | Machida, H., et al., "difficulties encountered during the Czochralski growth of TiO2 single crystals," JOURNAL OF CRYSTAL GROWTH, 112: 835-837 (1997).  |                |
|                    | CF                    | Camargo, M.B., et al., "Broad-band 1.54 um Saturable Absorber Q-switch with Co2+, " submitted to ASSL in 1995.  |                |
|                    | CG                    | Yumashev, K.V., et al., "Nonlinear spectroscopy and passive Q-switching operation of a Co2+: LaMgAl11O19 crystal," J. OPT. SOC. AM. B., 16(12): 2189-2194 (1999).   |                |
|                    | CH                    |   |                |
|                    | CI                    |   |                |
|                    | CJ                    |   |                |

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